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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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7590

08/09/2002

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EXAMINER

CROWELL, ANNA M

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

1763

DATE MAILED: 08/09/2002

4

Please find below and/or attached an Office communication concerning this application or proceeding.

MS

Office Action Summary

Application No.

09/821,027

Applicant(s)

CHEN ET AL.

Examiner

Michelle Crowell

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) 1-10, 26 and 27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 11-25 and 28-30 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☒ Claim(s) 1-30 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-10, 26, and 27 are drawn to a method, classified in class 216, subclass 68.
 - II. Claims 11-25, and 28-30 are drawn to an apparatus, classified in class 156, subclass 345.48.
2. Inventions I and II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the apparatus does not require different distributions of electromagnetic fields so that different amounts of total power are applied to the plural windings.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. During a telephone conversation with Allan Lowe on June 10, 2002 a provisional election was made without traverse to prosecute the invention of Group II, claims 11-25 and 28-30. Affirmation of this election must be made by applicant in replying to this Office action. Claims 1-10, 26, and 27 withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 11-25, 28-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 11-25 and 29 recite the limitation "winding" which is unclear because a winding is described as a coil and windings as a plurality of coils. However, it is well established in the art that a winding is simply a single turn of a wound material (i.e. coil) and a coil includes one or more windings with **terminal ends**. Note. For purposes of examination, windings are the turns in the coil.

3. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 24, lines 4-5 recites the broad recitation "the

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reactance coupled with each winding being arranged for controlling the value of the standing wave current in the respective winding, and the claim 19, lines 4-7, also recites "each variable impedance arrangement includes a single variable reactance coupled with each winding, the controller being arranged for controlling the value of the variable reactance to control the maximum amplitude of the standing wave current in each winding" which is the narrower statement of the range/limitation.

4. Claim 28 recites the limitation "the parallel windings" in lines 4-5. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 11-16, 25, and 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blalock et al (U.S. 6,095,159) in view of Kiyoshi et al. (Japanese Patent Publication 08-050998).

Referring to Figure 1 and 2, and column 3, line 44 – column 4, line 29, Blalock discloses an inductively coupled plasma generator 10 comprising a coil 34 (plasma excitation coil with plural parallel windings), a power supply 32 connected to coil 34, a variable capacitor 36 connected to the coil 34, and a control computer 42. The computer 42 controls the power source 32 and capacitor 36.

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Referring to column 3, line 63 – column 4, line 29, and column 4, lines 64-67, Blalock further teaches when a voltage is applied to coil 34, a standing wave is created across the coil 34. The point or points (location and value) of where maximum or minimum voltage (amplitude) occurs in the standing wave is determined by varying the value of the variable capacitor 36. Therefore, when voltage is applied to the coil and the variable capacitor is varied, variations of the substantial standing wave current occur along the length of the coil. Likewise, when the value of the variable capacitor is not varied, no variations in the standing wave current occur along the length of each winding.

Blalock discloses the invention substantially as claimed, however fails to teach variable impedance arrangements.

Referring to Drawing 1 and the abstract, Kiyoshi teaches a plasma treatment apparatus which uses a plate coil unit 13 to ignite plasma. The plate coil unit 13 includes several plate coils 14, 15, 16, and 17 which have variable capacitors 18 connected to the coils. The capacitance of the variable capacitors 18 is adjusted accordingly. Therefore, one coil can remain substantially constant while the current in another coil changes. The variable capacitors 18 are adjusted in order to increase flux density and to uniformly distribute flux density across the coils. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the coil unit of Blalock with multiple coils and capacitors as taught by Kiyoshi. By adjusting the variable capacitors connected to the coils, flux density is distributed uniformly across the coils.

Allowable Subject Matter

7. Claims 17, 18, and 21-23 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.
8. Claim 20 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michelle Crowell whose telephone number is (703) 305-1956. The examiner can normally be reached on M-F (8:00 - 4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on (703) 308-1633. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

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AMC *ame*
August 6, 2002

me
GREGORY MILLS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700